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REMARKS/ARGUMENTS

In the Office action mailed on January 28, 2004, the examiner rejected claims of this application under 35 U.S.C. § 112, first paragraph, as failing to comply with the description, and under 35 U.S.C. § 112, second paragraph as indefinite. Claims 1-4, 7-9, 11-14, 16-18 and 20 were rejected as anticipated by Smithyman et al. (USPN 6,047,497). Claims 5, 6, 11, 15 and 19 were rejected under 35 U.S.C. § 103(a) as unpatentable over Smithyman et al. In view of Blachford (Australian Patent No. 32801/95).

Applicants amended claims 1-3, 10, 11, 13, 19, 20, and added new claims 21 and 22. In making these revisions care has been taken to ensure that the claims remain supported by the specification and that no new matter has been added.

Applicants appreciate the time and consideration provided by Examiner in reviewing this application, however, respectfully traverse the rejection of claims 1-20 at least for the following reasons.

Rejection under 35 U.S.C. §112

The examiner has pointed out a number of inconsistencies with the use of the "first" and "second" shipping container terminology. Applicant amended the claims 1, 2 and 16 to overcome the examiner's objection.

Claims 1 and 13 are also said to be indefinite because the scope of the phrase "conventional shipping container" is unknown. Applicant respectfully traverses this statement. By way of an example, a search was made of the phrase "conventional shipping container" using www.google.com , and the result set located is attached. The eighth entry in the result set referred to an "export shipment containers", and that particular website www.export911.com/e911/ship/practice.htm discusses in detail the ISO (International Organization for Standardization) system for classifying cargo shipping containers for transportation. As can be seen from that discussion and drawings, the type of container, which Applicant is referring to is well known as a conventional, or a general purpose container. Furthermore, there is a link to another page entitled "Container Dimensions and Capacity" which shows that these general purpose, or conventional shipping containers are made in two types according to the main external length (20 foot and 40 foot). The Applicant has made clear reference to these typical dimensions in the specification on page 9, lines 25-35. Therefore, Applicant respectfully submit that a skilled person in this field, or in many other technical fields, would understand immediately what this term means, and would certainly understand this when reference is made to any one of Figures 1-3 in the application.

The other phrases objected to for lack of clarity included "substantially all of" which has now been deleted in claim 1. The phrase "substantially all of" was not present in claim 13, and instead this claim had the phrase "at least part of". Nevertheless for consistency with claim 1, the Applicant has deleted the phrase "at least part of" from the last portion of claim 13. The phrase "upper part" has been

deleted from claims 10 and 19, in accordance with the Examiner's opinion. The phrases or words "small diameter" and "appropriate" have been deleted from claims 11 and 20, in accordance with the Examiner's opinion.

Rejection under 35 U.S.C. §102

Anticipation under 35 U.S.C. §102 requires that each and every claimed feature be disclosed by a single prior art reference.

The apparatus of the present application includes a sealing means for cooperating with the inlet means and extraction means to seal the fumigant in the chamber during the interval of fumigation. Referring to the embodiment shown in Figure 1 in the specification, the fumigation apparatus comprises a shipping container 10, in one embodiment having a partition wall 14 dividing the container 10 into a control room 12 and a fumigation chamber 16. Produce is placed in the chamber 16 via the end doors 32, which are then sealed. The fumigant is piped directly into the chamber 16 and circulates by fans 28, 30 located on the interior of the partition facing into the chamber 16. In use, the chamber 16 is sealed because of the gas-tight nature of the partition 14, which prevents ingress of fumigant into the control room 12, and by closure of both the gas-tight end doors 32 and the actuated butterfly valve 40, which is piped in line with a contra-rotating fan 42). The doors are closed and the valve (and fan) are switched off until the conclusion of the fumigation interval. Thus, "when the fumigation interval is complete, the recirculation fans 28 and 30 are switched off, the flow of toxic gas into the chamber 16 is stopped, and gas is evacuated from the fumigation chamber 16, flowing consecutively through orifice 38, pipe 36, actuated butterfly valve 40 and contra-rotating fan 42 before exiting the apparatus via pipe exhaust stack 44" (page 9, lines 9-15). The mixing fans 28, 30 are provided to circulate gases within the chamber during the fumigation interval so as to prevent the toxic gases, which are heavier than air, from only locating in the lower portion of the fumigation chamber 16 (page 7, lines 12-15). However, once the mixing fans are turned off, and just prior to evacuation of gas from the chamber, these heavy gases settle down. By having the orifice 38, pipe 36, valve 40, etc. located in the lower region of the partition (page 7, lines 28-29), such an arrangement allows the toxic, heavier than air gases to be removed by fan induced suction from the fumigation chamber 16 at an appropriate lower height, where said gas molecules will naturally congregate without recirculating (page 7, line 35 to page 8, line 3). Then, when the monitoring system indicates that the fumigant has reached a safe level, the doors 32 are unsealed and opened and the fumigated goods are removed. The control of the actuated butterfly valve 40 and the contra-rotating fan 42 is provided by means of the system control box 26.

To the contrary, the system of Smithyman shown in Figure 1 of US6,047,497 operates in an entirely different manner and involves maintaining a gaseous mixture in constant recycle through the fumigation regions 44a-44c (column 4, lines 14-20). The gaseous mixture is usually phosphine gas mixed with one or more non-flammable inert gases, such as carbon dioxide and/or nitrogen (column 4, lines 36-38). The mixture of gases in the Smithyman's system is arranged so that the phosphine gas is not present

in high concentrations, which can be highly flammable (column 1, lines 39-57). The stated problem of prior art phosphine fumigation processes, which required solving by Smithyman, was that there was "a need for systems capable of managing the flow of such gaseous mixtures during fumigation" (column 2, lines 50-51), as well as limiting flammability, etc., as stated in column 2, lines 55-64.

The method of fumigation , which is outlined by Smithyman involves "removing a portion of the atmosphere from the regions (44a-44c), and returning the portion back to the region so as to create recycle flow of the atmosphere through the region, flowing a gaseous mixture from a source of the gaseous mixture to the region, the gaseous mixture including phosphine and being non-flammable in air, sensing concentration of phosphine for the atmosphere in the region, and controlling flow of the gaseous mixture to the region based on the sensed concentration of phosphine to form a pesticidal concentration of phosphine in the region" (column 3, lines 31-40).

The system of Smithyman also includes "a recycling passage for removing a portion of the atmosphere from the region and returning the portion back to the region so as to create recycle flow of the atmosphere through the region" (column 3, lines 50-53). The apparatus of Smithyman is clearly a "closed-circuit" of fumigant which passes from the source 10 to the fumigation region 44 via valve 59, recycle flow line 56 and recycling passage 42 to valve 62 and branch inlet passage 50. The fumigant can also pass from the source 10 to the fumigation region 44 via supply line 40, region feed line 58, valve 60 and branch inlet passage 50. Once in the fumigation region 44, the gas passes directly into the exhaust passage 48 and via valve 72 back to the blower 54 and the recycling passage 42. The recycle of flow in this manner is said to be very beneficial because it conserves the gaseous mixture and reduces the amount of phosphine that could be released into the environment (page 6, lines 53-56). The only times that recycling of gas through the region 44 is not practiced is when valve 62 is closed, when the region 44 is not in use (column 6, lines 57-65), or when the system is vented so that the region 44 can be accessed. In the latter situation, valve 72 is moved from its normal re-circulation position to allow ambient air 70 to flow into exhaust passage 48 and to release fumigant via valve 64, vent 66 and scrubber 68. During operation, a variety of sensors are linked to controller 38 which can operate valves 59 and 60 and thus regulate the amount of phosphine present in the gas which is cycling through the region 44 (column 8, lines 1-6).

Thus, the system of Smithyman et al. constantly monitors and manages the relative concentrations of inert substance and phosphine in the gaseous mixture to ensure that the mixture is non-flammable (column 9, lines 58-62). Over time, the concentration of phosphine in the region 44 increases to a pesticidal level (column 10, lines 10-14). "The recycle flow maintains relatively uniform concentrations of phosphine throughout each of the regions 44a-44c during fumigation. In addition, the recycle flow reduces the amount of gaseous mixture required during fumigation because the gaseous mixture initially introduced into the recycling passage 42 and regions 44a-44c continuously passes through the regions 44a-44c" (column 10, lines 15-23). Without the recycle of phosphine fumigant gas mixtures, the system of Smithyman simply would not be able to operate as a fumigation system, nor would it be able to achieve the promised safety benefits over the admitted prior art equipment and processes (column 11,

lines 36-51).

In the present application, the independent claim 1 has now been clarified in order to better distinguish the invention from the cited prior art. Claim 1 now defines:

"A fumigation apparatus including:

a first type shipping container which at least in part defines a fumigation chamber being adapted to contain produce to be fumigated, and

mobile fumigation means operatively coupled to the container, the mobile fumigation means including:

fumigant inlet means operatively coupled to the container to allow a flow of a fumigant into the fumigation chamber during a fumigation interval;

extraction means operatively coupled to the container and arranged to remove a majority of the fumigant from the fumigation chamber after the fumigation interval concludes;

sealing means for co-operating with the inlet means and extraction means to provide sealing of the fumigant in the chamber during the fumigation interval; and

absorption means being operatively coupled to the extraction means for absorbing the fumigant extracted from the fumigation chamber."

Thus, as it is now claimed, and as described in the embodiments of the present application, the sealing means cooperates with the inlet and extraction means to provide sealing of the fumigant in the chamber during the fumigation interval. It is only after the fumigation interval is concluded that the sealing means is breached and the extraction means is initiated to remove a majority of the fumigant from the fumigation chamber. This is in contrast to the system of Smithyman (US6,047,497) in which there is a continuous recycle of the fumigant through the fumigation regions 44a-44c. The only times that recycling of gas through the region 44 is not practiced is when the region 44 is not in use or is being vented prior to access by workers. Without the recycle passage of fumigant gas mixtures continuously through the fumigation region 44, the system of Smithyman etn al. simply would not be able to operate as a fumigation system, nor would it be able to achieve the promised safety benefits, whereas the instant claimed invention has no such restriction. Smithyman shows no sealing means in the outlet of his fumigation regions 44, there being no valve or other closure between these regions 44 and the exhaust passage 48, nor between exhaust passage 48 and the blower 54, with the exception of valve 72, which is always in the recycle position during fumigation operation anyway (column 7, lines 31-38). Smithyman et al. does not teach or suggest a fumigant gas outlet sealing means, which is closed off until the fumigation interval is completed.

A similar argument is made to support claim 13 as it is now defined. In the instant claimed invention, the independent claim 13 has now been clarified in order to better distinguish the invention

from the cited prior art. Claim 13 now defines:

> "A method of fumigating produce, the method comprising the steps of:
> - providing a fumigation apparatus including an ISO general purpose shipping container which at least in part defines a fumigation chamber and a mobile fumigation means operatively coupled to the container;
> - locating the produce to be fumigated in the fumigation chamber;
> - providing a flow of a fumigant to the fumigation chamber;
> - sealing said fumigant in the chamber for an interval so that fumigation of the produce can occur;
> - extracting at least some of the fumigant from the chamber; and
> - absorbing the fumigant extracted from the fumigation chamber."

The method of claim 13 now includes a step of sealing the fumigant in the chamber for the period of fumigation, which is supported by the specification on page 1, lines 27-30. One of the problems of the current methods of fumigation is that they are ineffective since no mixing of gases with the material being fumigated can occur. In one embodiment of the present application, when heavier than air fumigant gas flows into the chamber 16, the circulation of the fumigant around the chamber is provided by fans 28, 30 located in the chamber interior to permit thorough and even mixing the gas (page 4, lines 15-19; page 7, lines 13-15). The chamber 16 is sealed by the partition 14 (page 6, line 19 - page 7, line 6) and in use by closure of both the gas-tight end doors 32 (page 7, lines 24-26) and of the actuated butterfly valve 40 and contra-rotating fan 42. The doors are closed (page 8, lines 18-23), and the valve and fan are switched off until after the fumigation interval is concluded (page 9, lines 9-15). By having a sealed system into which known amounts of fumigant can be added, even to very high levels, and with a thorough mixing of gas in the chamber by mixing fans during fumigation, the method of the present application can achieve a highly effective fumigation result compared with the system of the cited prior art reference, in which the level of fumigant is constantly monitored and largely managed(Smithyman et al., column 9, lines 58-65). Whereas the system of the present application can achieve the desired fumigation condition quite quickly (page 5, lines 16-18), this is not the case in the cited prior art (Smithyman, column 10, lines 7-14): "Initially the gaseous mixture is diluted when it combines with the atmosphere present in the regions 44a-44c, and the recycling passage 42 before initiation of gas fumigation. Over time, more gaseous mixture flows into the recycling passage 42 and the regions 44a-44c, and eventually the concentration of phosphine in the regions 44a-44c increases to a pesticidal level".

Smithyman et al. do not teach or suggest sealing the fumigant in the chamber during the fumigation interval. To the contrary, there is a continuous recycle of fumigant through the fumigation regions 44a-44c. The system of Smithyman must operate with continuous recycling of gas so that it can achieve the promised safety benefits, whereas the instant claimed invention has no such restriction.

Based on the above, Applicant respectfully submits that the independent claims 1 and 13 as amended by this Amendment, are novel and inventive in view of Smithyman et al. (US6,047,497).

New claims 21 through 23 have been added to further define the sealing means, which cooperate with the inlet and extraction means. Claim 21 relates to the embodiment of the invention shown in Figure 3, and claims 22 and 23 relate to the embodiment of the invention shown in Figures 1 and 2. In claims 22 and 23, the sealing means comprises a valve (40), a perimeter seal of an openable door (32) and the partition wall (14) in order to confine the fumigant gases in the chamber 12. In claim 21 the sealing means comprises only a valve (not numbered but shown on the pipeline (360), in-line with fan (420) and absorption bed (150) and before exhaust stack (440)), and the perimeter seal of the openable end doors of the container (100A, 100B). In the embodiment shown in Figure 3, the entire container comprises the fumigation chamber (160).

Rejection under 35 U. S. C. §103(a)

According to MPEP §706.02(j):

"To establish a *prima facie* case of obviousness... the prior art reference (or references when combined) must teach or suggest all claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on the applicant's disclosure."

Claims 5, 6, 10, 15 and 19 were rejected as being unpatentable over Smithyman et al. (US6,047,497) in view of Blatchford (AU32801/95). On the basis of the amended claims, Applicant respectfully traverses this rejection.

The inventions of Blatchford (AU32801/95) and of Smithyman et al. both involve the generation of a fumigant gas mixture, and both operate in an entirely different manner to the present invention, as it is now defined. These systems involve maintaining a gaseous mixture in constant recycle, closed circuit through the fumigation regions (which are not actually shown in the drawings in AU32801/95, only described). The gaseous mixture is usually phosphine gas mixed with one or more non-flammable inert gases, such as carbon dioxide and/or nitrogen. The mixture of gases in the system of these citations is arranged so that the phosphine gas is not present in high concentrations, which can be highly flammable. The stated problem of prior art phosphine fumigation processes which required solving by Smithyman and Blatchford is the same, essentially to limiting the flammability of gases. In Blatchford, no unequal or inordinate rates of fumigant gas generation are said to be experienced in the circulatory loop gas flow system (page 14, lines 8-10). The chamber 10 in Blatchford is a fumigant generation apparatus for connection to a fumigation region, and is designed internally to avoid any localized high concentrations of fumigant gas being generated.

The cited prior art teaches away from the idea of having a sealing means that cooperates with the inlet and extraction means of the container to seal the fumigant in the fumigation chamber during

the fumigation interval, and, where it is only after the fumigation interval is concluded that the extraction means is initiated to remove the fumigant from the fumigation chamber. Applicant asserts that the skilled person in the art of developing fumigation apparatus would need some inventive faculty to go beyond the known prior art apparatus and method to develop a new apparatus and method with the feature of a sealing means to allow the fumigation of goods, possibly at very high or unrestricted concentration levels of fumigant, in a fast and highly effective manner. The present apparatus and method do not need to operate with continuous recycling of fumigant in order to achieve effective fumigation.

Therefore, is respectfully submitted the claims 5, 6, 10, 15 and 19 comply with 35 U.S.C. §103, and are allowable in view of cited prior art.

In view of the above, it is respectfully submitted that the application is now in condition for allowance which allowance is earnestly solicited.

The Commissioner is hereby authorized to charge any additional fees which may be required in this application under 37 C.F.R. §§1.16-1.17 during its entire pendency, or credit any overpayment, to Deposit Account No. 06-1135. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 06-1135.

Respectfully submitted,

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The Forwarding Practices of Exporters

Exporters use the services of a forwarder primarily for convenience. New exporters can benefit from the services of a good and honest forwarder.

In less developed countries, it is a business practice that the exporter utilizes own contacts or sources of export services like trucking and customs declaration, especially in ocean shipments, instead of relying on the forwarder, which is the practice in developed countries.

Referring to Case Sample: Freight Consolidation (1), **XY Consolidator** may offer **UVW Exports** to transport their goods at US$70/CBM, including such charges as the inland freight (cartage) and handling, from **UVW Exports'** premises to Port B. If **UVW Exports** uses its own contacts in the forwarding instead of a consolidator, the freight rate of US$55/CBM from **RS Shipping** plus all other charges may amount to less than US$70/CBM. Exporters should always check the options.

Importer's Specified Forwarder or Consolidator and Its Implication

Some importers may specify the forwarder to use for their imports. The international freight forwarder either has own office or a handling agent abroad.

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Case Sample: Freight Consolidation (2)

Further to Case Sample: Freight Consolidation (1), assuming that **XY Consolidator** has an office named **XY Branch** at the importing country of **DEF Imports**, and **DEF Imports** contracts **XY Branch** to handle a shipment from **UVW Exports** at the exporting country, the sales term is **FOB Port A** in the exporting country. The contract, in which **UVW Exports** is informed in advance by **DEF Imports**, calls for a delivery from Port A to **DEF Imports'** premises---meaning that **DEF Imports** has to pay **XY Branch** the agreed-upon CBM (cubic meter) cost to cover such charges as the ocean freight from Port A to **Port B** in the importing country, and the handling charge, documentation fee, and inland freight from Port B to **DEF Imports'** premises.

XY Branch notifies **XY Consolidator** of the contract and requests it to coordinate with **UVW Exports**. As the trade term is **FOB** Port A, **UVW Exports** must arrange and pay for the cartage from its premises to Port A, plus the brokerage fee and other charges. Under this situation, **XY Consolidator** may offer to handle the trucking and customs declaration for **UVW Exports**. The exporter (the **UVW Exports**) must check the options before accepting the offer. Depending on the country, the cost can be lower, or higher, when the exporter uses its own contacts.

In another instance, the importer, especially the new customer, may not inform the exporter that a forwarder will be involved in the delivery. The exporter becomes aware of such involvement only after receiving the letter of credit, in which a forwarder is specified. Such incidence must be avoided as the cost of exporting can be affected, for example, the diversion of cargo to another location designated by the forwarder, which may cost more.

Freight Containers

The pattern of cargo reception and shipment has changed with the use

of the **freight container---container, box** or **LO/LO** (lift on/lift off). The use of containers, which started more than 40 years ago, in intercontinental traffic is now available in most seaports worldwide.

In the 1960's, many seaports either had inadequate container facility or none at all. Consequently, export shipments often relied on conventional (break-bulk) vessels. The cargoes were placed alongside a vessel for hoisting on board. The stevedores (longshoremen) were often employed to carry cargoes on and off the vessel. The loading and unloading of vessels consumed too much time, which caused dockside bottlenecks and delayed shipments. With the increased use of containers, the congestion was decentralized. The problem of congestion was transferred from the docks or piers to the container freight stations or terminals.

ISO Freight Containers

The acronym **ISO** stands for the **International Organization for Standardization**, with headquarters in Geneva, Switzerland. The ISO freight container refers to a container complying with the ISO container standards In existence at the time of its manufacture.

Container Classifications

Containers are available in configurations to take almost every kind of cargo and mode of transportation (ocean, air, road, and rail).

Containers for Intercontinental Use

In terms of the type of cargo for which the containers are mainly intended, they are classified as general cargo container and specific cargo container.

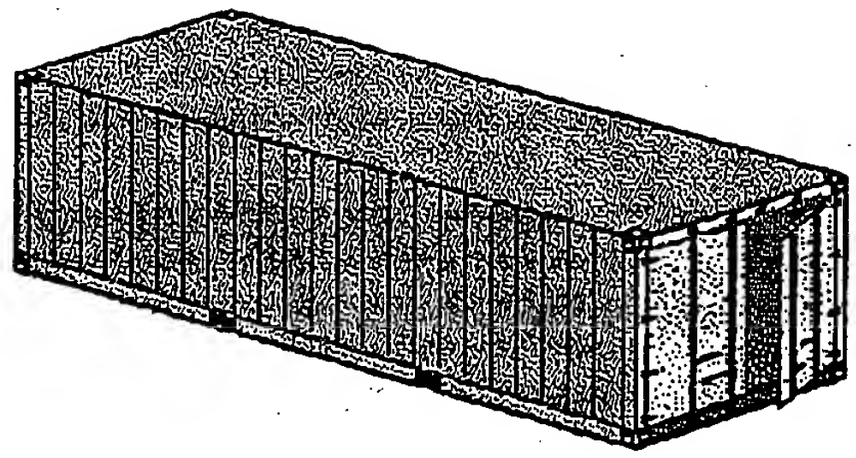
- **General Cargo Container**

(1) General purpose (dry cargo) container

It is suitable for the widest varieties of cargo. It is fully enclosed and weatherproof, having rigid walls, roof and floor, with at least one of its walls, either end

wall (end loading) or side wall (side loading), equipped with doors.

Please see Dimension of General Purpose Containers for the related information.



Dry Cargo Container

(2) Specific purpose container

It is used to facilitate the packing (loading) and emptying (unloading) of container other than by means of doors at one side of the container, and for other specific purposes like ventilation.

- **Closed ventilated container**
  It is used for the carriage of cargo, such as hides, that cannot stand excessive moisture. It is similar to the dry cargo container with specially designed natural or mechanical (forced) ventilation.

- **Open top container**
  It is similar to the dry cargo container except that it has no rigid roof, but has a movable or removable cover (e.g. a cover made of canvas, plastic or reinforced plastic material) supported on movable or removable roof bows. The open top container is used for machinery, sheet glass, and other heavy, bulky or long objects.

- **Platform (flat rack)**
  It does not have a superstructure, that is, rigid side walls and load-carrying structures. The term **load** refers to static/dynamic form of load (not cargo load) or forces arising out of the lifting, handling, securement and transporting of container. It is equipped with top and bottom corner fittings. The **corner fittings** (see diagram in the Dimension of General Purpose Containers) provide means of supporting, stacking, handling and securing the container. The flat rack is used for machinery, lumber, and other heavy or large objects.

- **Platform based containers open sided**

- **Specific Cargo Container**

(1) Thermal container (reefer)

It has insulated walls, doors, roof, and floor, which limit the range of temperature loss or gain. It is used for perishable goods like meat, fruits and vegetables.

- **Insulated container**
  It does not use any device for cooling and/or heating.

- **Refrigerated container (with expendable refrigerant)**
  It uses dry ice or liquefied gases. It does not require external power supply or fuel supply.

- **Mechanically refrigerated container**
  It uses a refrigerating appliance, that is, the mechanical compressor or absorption unit.

- **Heated container**
  It uses the heater, that is, a heat-producing appliance.

- **Refrigerated and heated container**
  It uses the refrigerating appliance (mechanical or expendable refrigerant) and heater.

(2) Tank container

It is used for the carriage of bulk gases and liquids like chemicals.

(3) Dry bulk container

It is used for the carriage of dry solids in bulk without packaging, such as grains and dry chemicals. It consists of a cargo-carrying structure firmly secured within the intercontinental container framework.

(4) Named cargo types

It consists of various types of containers, such as automobile (car) containers and livestock (cattle and poultry) containers.

Unit Load Device (ULD)

The **unit load device** (ULD) is the air equivalent of the **ISO** container. Due to its unique shape resembling an igloo, the **ULD** is sometimes called the **igloo** (or **iglu**).

The air mode containers mainly are of the **IATA** (International Air Transport Association) types. The popular sizes of ULD include the IATA Type:

IATA Type

8	⟶ lower deck container,	60.4"	x	61.5"	x 64"
5	⟶ lower deck container,	88"	x	125"	x 64"
3	⟶ main deck container,	88"	x	125"	x 86"

Several other types of ULD are also in use worldwide.

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Container Dimensions and Capacity

Containers intended for intercontinental use have external nominal dimens

Length ----- 9.8125 feet (2.991m) as **10** feet;
19.875 feet (6.058m) as **20** feet;
29.9375 feet (9.125m) as **30** feet; and
40 feet (12.192m)

Width ----- **8** feet (2.438m)

Height ----- **8.5** feet (2.591m) and
9.5 feet (2.896m)

All above dimensions have permissible tolerances.

The 20 feet (20') and 40 feet (40') containers are very popular in ocea 8.5 feet (8.5') high container---8 feet 6 inches (8' 6") high container---is c as **standard container.**

The demand for the **high cube container**---**hicube**---is increasing. T cube container has a normal height of 9.5 feet (9.5' or 9' 6").

There are **half height containers** (4.25' or 4' 3" high) designed for l as steel rods and ingots, which absorb the weight limit in half the normal s

The most widely used type of container is the **general purpose (dry container** (please see Container Classifications) having a nominal length **20' x 8.5', 40' x 8.5',** and **40' x 9.5'.** Referring to the Dimension of Gen Containers below, the dimensions shown in the table are not fixed, that is, and internal dimensions may vary among containers of the same length a

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The container **capacity** is the total cube a container can accommodat **cube** often refers to the cubic measurement of cargo. The capacity (i.e., t volume) is determined by multiplying the internal dimensions, that is, the internal length, width and height. The capacity may vary among container length and height.

Rating, Tare Mass and Payload of Containers

Rating

Rating is the maximum gross mass (or weight), that is, the maximu weight of a container plus its contents. The rating of a **20'** dry cargo **24,000 kgs.** (52,900 lbs.), and a **40'**, including the high cube conta **kgs.** (67,200 lbs.).

Tare Mass

Tare Mass---tare weight or **tare---**is the mass (or weight) of emp including all fittings and appliances used in a particular type of conta normal operating condition.

The tare mass of containers may vary due to the different const techniques and materials used in the container. A 20' x 8.5' dry carg weigh **1,800 kgs.** to **2,400 kgs.**, a 40' x 8.5' may weigh **2,800 kg** and a 40' x 9.5' may weigh **3,900 kgs.** to **4,200 kgs.** Some dry ca may fall outside the indicated weight range. The reefer weighs more cargo container of the same size.

Payload

Payload is the maximum permitted mass (or weight) of payload, in dunnage and cargo securement arrangements that are not associate container in its normal operating condition. Therefore,
Payload = Rating - Tare Mass.

If the tare mass of a 20' dry cargo container is 2,400 kgs. and a kgs., the payload of 20' is 21,600 kgs. (i.e., 24,000 kgs. minus 2,40 is 26,580 kgs. (i.e., 30,480 kgs. minus 3,900 kgs.). However, the e prohibited to have that much payload in areas where there are legal the overall load of a vehicle.

In exporting, it is common to encounter a payload of 17,500 kg 20' container, and 24,000 kgs. or less in the 40' container.

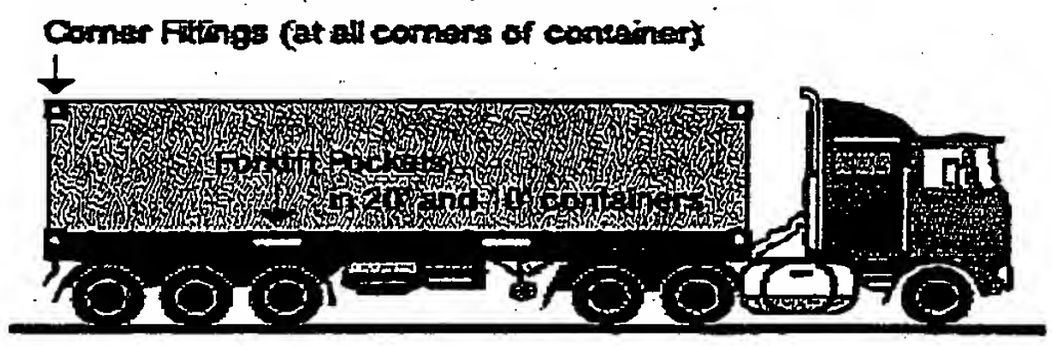
The Marking and Identification of Containers

The rating, tare mass and payload of a container is marked on its wall, usi
(rear) door in the case of an end-loading dry cargo container.

Each container has an identification code or **container number**---a c
the 4-letter characters that identify the owner (the operator of container)
numeric characters that identify the container. The container number can
outer and inner side walls.

The container number is entered on the bill of lading to facilitate the i
tracking of the container and the cargo.

Table and Diagram:
Dimension of General Purpose Containers



Dimension of General Purpose Containers

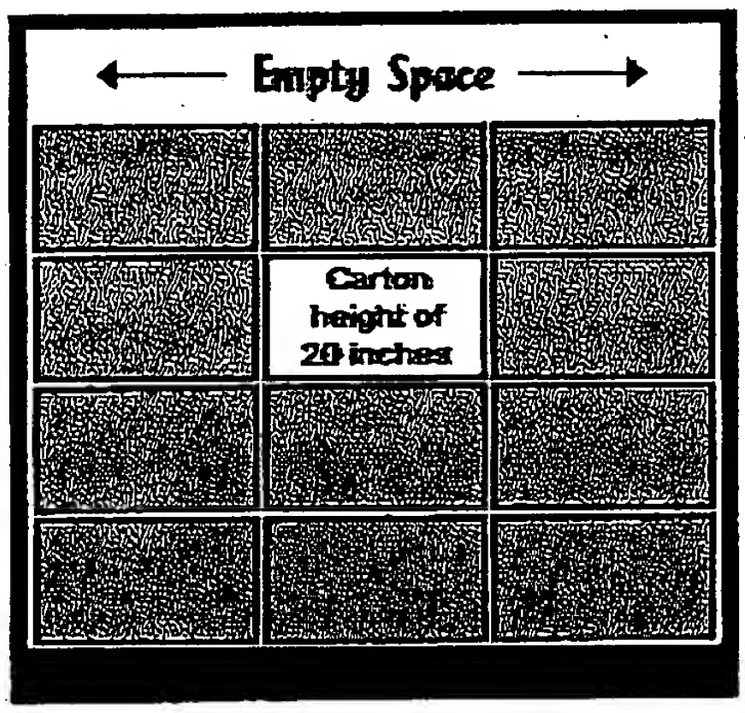
CONTAINER				Capacity		
Nominal Dimension	Length	Width	Height	Cubic Feet	Cubic Meter	
External	20'	8'	8' 6"			
	6.096 m	2.438 m	2.591 m			
Internal	19' 4.25"	7' 8.625"	7' 10"	1170 cft		1
	5.899 m	2.353 m	2.388 m		33.131 cbm	
External	40'	8'	8' 6"			
	12.192 m	2.438 m	2.591 m			

Internal	39' 5.375"	7' 8.625"	7' 10"	2385 cft		2
	12.024 m	2.353 m	2.388 m		67.535 cbm	
External	**40' Hicube**	8'	9' 6"			
	12.192 m	2.438 m	2.896 m			
Internal	39' 5.375"	7' 8.625"	8' 10"	2690 cft		2
	12.024 m	2.353 m	2.692 m		76.172 cbm	

NOTE: Containers with the same external length may not have exa same internal length and width.

The **Recommended Load Volume** (RLV) refers to the sug maximum cube to use in calculating a full container load. Tl be about 10-15% less than the container capacity, dependir export pack dimensions.

Rear view of **20' x 8.5'** container



CAUTION:

Miscalculated capacity may large empty and unusable s shortage in space. For exar **20' x 8.5'** container diagra left), the master cartons ha uniform height of 20 inches length and width are greate height. If 1170 cubic feet is calculate a 20' full containe most likely some cartons w despite the empty space of cubic feet. You cannot stuff remaining cartons into the 14" high empty space.

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